REMARKS

Claim Rejections - 35 U.S.C. § 112

The Examiner has rejected claims 55 and 56 under 35 USC §112 as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 55 and 56 have been amended to more particularly point out and distinctly claim the invention.

Claim Rejections - 35 U.S.C. § 102 and § 103

The Examiner has rejected claims 1-5, 12, 15, 19, 23, 25, 32-34, 51, 54, 57 under 35 USC §102(e) as unpatentable over Boyers (U.S. Patent No. 2003/0051742). The Examiner has rejected claims 6, 7, 13, 14, 20, 22, 24, 52, 53, 55 and 56 under 35 USC §103(a) as unpatentable over Boyers (U.S. Patent No. 2003/0051742). The Examiner has rejected claims 8, 17, 18, 21 and 58 under 35 USC §103(a) as unpatentable over Boyers (U.S. Patent No. 2003/0051742) as applied to claims 1, 20, and 51 above, and further in view of Zhang et al. (U.S. Patent No. 2004/002995). The Examiner has rejected claim 16 under 35 USC §103(a) as unpatentable over Boyers (U.S. Patent No. 2003/0051742) as applied to claim 12, and further in view of admitted prior art. The Examiner has rejected claims 9-11 under 35 USC §103(a) as unpatentable over Boyers (U.S. Patent No. 2003/0051742) as applied to claim 1, and further in view of Farber et al. (US 2001/0047810). The Examiner has rejected claims 35 and 36 under 35 USC §103(a) as unpatentable over Boyers (U.S. Patent No. 2003/0051742) as applied to claim 23, and further in view of Bergman (US 2004/0221877).

The Applicant respectfully traverses. The cited references fail to teach or render obvious all of the elements of the Applicants' claimed invention.

In particular, the cited references fail to teach the element of independent claim 1 of "maintaining a combination of wafer spin rate and liquid flow rate that is above a curve defined by the combinations of approximate wafer spin rates and approximate liquid flow

rates of 2000 rpm and 1.25 l/min, 1000 rpm and 2.2 l/min, and 200 rpm and 3.4 l/min while dispensing a second liquid." In contrast, Boyers teaches dispensing a first liquid (an ozone water solution) at a wafer spin rate and liquid flow rate above the curve defined by the Applicants' claim 1, but fails to teach maintaining that combination of wafer spin rate and liquid flow rate upon dispensation of a second liquid on a 300mm wafer. Instead, Boyers teaches single wafer processing configurations for 150 mm wafers that include wafer spin rates and liquid flow rates for both the etch clean and rinse dispensations. The references Zhang, Farber, and Bergman also fail to teach the above element of independent claim 1. Therefore, the Applicant respectfully submits that the cited references fail to teach or render obvious independent claim 1 and the claims that depend upon and incorporate the limitations of independent claim 1.

The cited references also fail to teach the element of independent claim 23 of "*minimizing the turbulence in the liquid layer during a transition in the liquid layer from the first pH to a second pH, the wafer spinning at a second spin rate during the transition, wherein minimizing turbulence within the liquid layer during the transition comprises keeping the second spin rate below 500 rpm.*" The limitation of "*keeping the second spin rate below 500 rpm*" was originally in claim 26 which was objected to by the examiner as being dependent upon a rejected base claim (independent claim 23) but would be allowable if rewritten in independent form including all of the limitations of the base claim. Therefore, the Applicant respectfully submits that independent claim 23 as amended and the claims that depend upon and incorporate the limitations of independent claim 23.

The cited references also fail to teach the element of independent claim 51 of "*modifying the cleaning solution so that the cleaning solution is capable of etching at a second etch rate lower than the first etch rate and producing a second amount of etch products in the cleaning solution lower than the first amount of etch products, **wherein modifying the cleaning solution comprises dispensing a second cleaning solution having a second concentration of etchants to dilute the first cleaning solution***." In contrast, Boyer merely teaches that the etch solution dispense may not be halted during the rinse period and that the rinse and etch solutions may be applied to the substrate concurrently during all or a portion of the cycle (paragraph 26). The dispensing of the rinse and the etch solution at the

same time may dilute the etch solution, but is not the same as dispensing a second solution having a second concentration to dilute a first solution. The Zhang, Farber, and Bergman also fail to teach this element. Therefore, the Applicants' respectfully submit that independent claim 51 and the claims that depend upon and incorporate the limitations of claim 51 are not anticipated or rendered obvious by the cited references.